

LAND, climate, and vegetation of India are favourable for reptile life. The most important reptiles are snakes. India has a variety of snake fauna, ranging from the tiniest blind snake to the giants among the serpents such as pythons and king cobra. Altogether they comprise about 240 kinds. Only a few—fifty species are venomous. Majority of snakes found in our lakes, marshy lands and agricultural areas are harmless. What is more, some of them are useful as rodent killers. **Non-venomous snakes: blind snakes**

Members of this primitive, non-venomous snake family have a worm-like cylindrical body, a pointed and short tail and vestigial eyes. They possess extreme specialisation to a burrowing mode of life. In inclement weather or after a shower, they are often found near the surface under stones or vegetable debris where they come in search of food that consists of worms, ants and their eggs, termites and other small, soft bodied insects and their larvae. This diminutive and harmless snake causes a surprise sometimes by appearing in water taps in large cities through the muddy water-mains where it is assured of plentiful supply of its favourite food—ants. The Brahminy Blind Snake (*Ramphotyphlops braminus*) is found throughout India. Carried around the world in flower pots by human agency or by accident it has colonised even the snakeless Lakshadweep. The Beaked Blind Snake (*Typhlops acutus*) of Central India is the largest of Indian species. It attains a length of 60 cm. The blind snake makes a good pet as it thrives well in captivity if kept in loose, damp, and sandy soil and fed on insect food, mainly termite larvae. When handled, it secretes an unpleasant musk and tries to poke its captor with the sharp tip of its tail. Some blind snakes lay eggs while others give birth to the young alive.

SNAKES OF INDIA

T.S.N. MURTHY

Only about a fifth of the 240 species of snakes found in India are venomous ; most of the rest are useful as rodent killers

Shieldtails

The shieldtails, so called because of large shield-like spiny scale at the back of the tail, are another family of earth snakes confined to the forests of South India. All shieldtails (*Uropeltids*) have powerful, pointed heads and their eyes are buried in the skin in tune with their mode of existence in leaves, humus or debris or under stones often at high elevations. As would be expected, they feed on earthworms and other insects. Though they lead a sheltered life, it is surprising that a majority of these snakes are brilliantly coloured—red, orange and yellow. Some black forms are noted for their iridescence. They reproduce by giving birth to about six live young ones at a time. The largest of the shieldtails hardly exceeds one meter in length. When handled or caught first, a shieldtail, instead of attempting to bite, twines itself round the fingers or the stick of his captor and loves to be carried in that position for long distances. Some thirty three kinds of these unique snakes are found in the wooded districts of South India. Their survival hangs in balance with the depletion of forests.

Sunbeam snake

The Sunbeam snake (*Xenopeltis unicolor*), so named because of its highly polished and iridescent scales, is also a burrowing form found in rice fields and gardens of the Andaman

Islands and nowhere else in India. It spends most of its time buried in the soft earth and issuing forth only at night in search of food—frogs, lizards, and even other snakes. Because it is a shy creature and is rarely seen, its brilliant iridescence under certain lights is seldom noticed. Though it grows to one meter in length, it is a harmless snake and does not attempt to bite when handled. However, when excited it could vibrate its short tail with an amazing speed. It has no close relatives and by itself constitutes a separate family.

Boas and pythons

Less changed from their lizard like primitive ancestors, boas and pythons are marked off by having a pelvic girdle and legs which are in fact vestigial and functionless. The so called "legs" are minute single bones in the form of claw-shaped spur on each side of the vent. While these rudimentary legs seem functionless in females, males use them to tap the female's flanks during courtship. Majority of boas and pythons live near water and some spend most of their lives in water. The tail in some is extremely prehensile, which enhances their climbing powers. As an adaptation for their nocturnal mode of life, the eyes of boas and pythons are small with vertical pupils. Both feed mainly on birds and mammals. All boas are nonvenomous, but their mobile jaws are heavily studded with long, backward pointing, curved needle-sharp teeth used to grip their slippery prey firmly. They overcome their preys by constriction—a method of coiling around the preys and squeezing them to death. Based on the mode of reproduction, the family is divided as boas which bear living young, and the pythons which lay eggs. While the boas of India are an apology to their kin in the New World, we can be proud of the fact that the world's longest snake, reticulate python (*Python reticulatus*) is

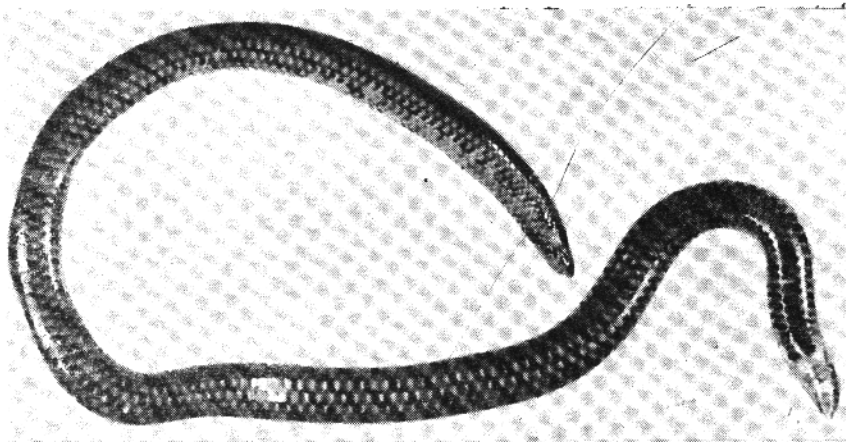


Fig. 1. Nilgiris sheildtail (*Plectrurus perroteti*)

found in the Nicobar.

Two kinds of sand boas—the Red Sand Boa (*Eryx johni*) and the Common Sand Boa (*Eryx conicus*), are found in India. The Sand boas are active in night when they prey upon rats and other agricultural rodent pests. They are found in India. The pests. They are sluggish and spend most of their time buried in the loose sandy soil. When molested, a sand boa defends itself by hiding its head beneath the coils of its body. They give birth to living young six to eight at a time, exact replicas of their parents. The tail of the Red Sand Boa is so blunt that it almost appears like another head. Snake charmers display this snake as a 'Double-headed Snake' to their gullible spectators. The common sand boa is met with in planes and low hills throughout India

while its ally, the red sand boa, is confined to the drier parts. In size they rarely exceed one meter. Pythons, giants among the living Indian snakes, need no introduction. Pythons are lazy creatures, they do not leave their resting places unless they are provoked or are awfully hungry. Their diet includes mice, birds and mammals like jackals, deer, ox and wild boars, etc. A python kills its prey by the iron grip of its heavy coils but not by breaking the bones of its victims as is generally believed. However large they may be pythons are nervous by nature and, like all other snakes, do not attack deliberately nor become aggressive unless provoked. A female python exhibits rather extraordinary maternal instinct by remaining coiled around the clutch of her

eggs for 60-80 days or as long as it takes her to hatch and is even reported to manipulate her temperature for the process of incubation of her offspring. As the attractive skins of pythons fetch fabulous prices these huge snakes are slaughtered in good number wherever they are found. Meat of these serpents is relished by some tribals. Two kinds of pythons are found in our country. The Asiatic Rock Pythons (*Python molurus*) is found throughout the country, while the other, the Reticulated or Regal Python (*Python reticulatus*) is confined to the Nicobar Islands. Though its home is thick jungles, the Rock Python is also seen in the estuarine mangrove swamps and scrub jungles dotted with hill streams. It grows to 6 m in length and is easily recognised by the bold blotches on its body, short tail, and the arrow-shaped mark on the head. The pride of place among the pythons of the world goes to the Reticulated Python so named because of the bold, dark, lozenge-shaped markings on its back. Rivalled only by the Anaconda, the water boa of South America, it reaches a record length of 12.5 m. For all its huge dimensions, it requires a diet consisting of fowls, ducks, cats, dogs, and pigs.

Colubrids

Colubrids are a large and unwieldy family of the typical harmless snakes

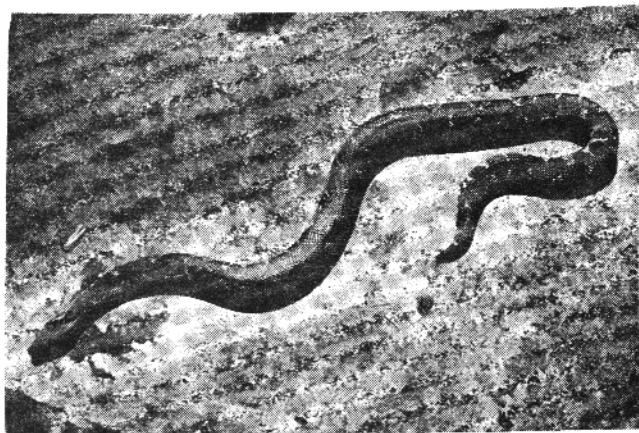


Fig. 2. Common sand boa (*Eryx conicus*)

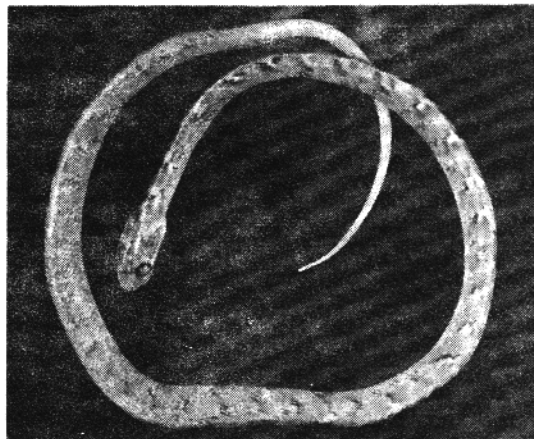


Fig. 3. Cat snake (*Boiga trigonata*)

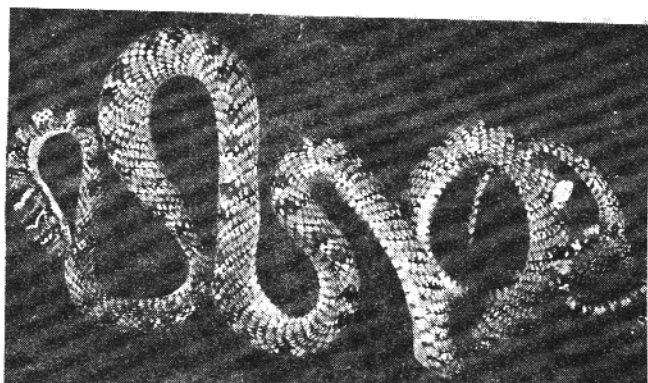


Fig. 5. Flying snake (*Chrysopelea ornata*)

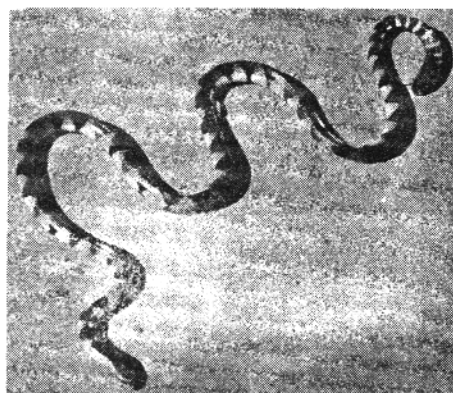


Fig. 6. Sea Krait (*Hydrophis caeruleus*)

of India. They live in a variety of habitats on the ground, on trees, and in water. Barring a few exceptions, most colubrids are devoid of true fangs or venom though their saliva may be toxic to their prey. It is difficult to call this vast assemblage of the typical snakes by a single name. One has only to recall such diverse snakes as Grass Snakes, Rat Snakes, Wolf Snakes, Tree Snakes, Cat Snakes, Water Snakes and so on. In tune with their varied sizes and shapes, colubrid snakes exhibit diversity in their mode of feeding and breeding. The smaller forms subsist on worms and insects while the larger ones feed exclusively on birds and mammals which are killed by them by constriction. The colubrids that live in water prey on fishes and amphibians. Majority of colubrids reproduce by laying eggs, while the rest bring forth their young alive. Of 130 kinds of colubrids found in India, we shall describe the species we are familiar with.

The common grass snakes (*Amphiesma stolata*) which is recognised by its rough back and two yellow lateral stripes running down the back often enters our homes. It is mainly a frog eater in search of which it frequents grassy and bushy areas. It grows to 80 cm and makes no attempt to bite when caught. But it flattens its neck to give the false appearance of a cobra-like hood.

The chequered keelback (*Xenochrophis piscator*) is the commonest

water snake of India. This snake which attains a length of 2 m has a thick set body characterised by markings on the pattern of a chess-board. Though it hardly secretes any venom, it is ill-tempered and bites readily when molested. It spends much of its time in water where it gets a plentiful supply of its favourite food consisting of fishes and frogs. It is active in day time and lays upto 80 eggs at a time.

The dog-faced water snake (*Cerberus rhynchops*), so called because of its longer lower jaw makes its face look like that of a dog's, is found in the muddy estuaries, salt creeks and river mouths. It is a sluggish snake, but if cornered, hisses and bites viciously. It attains a length of 1.5 m. It feeds upon fishes and brings forth live young.

The wolf snake (*Lycodon aulicus*) is a small, slender snake which is seen only during nights and is met with in the outhouses, on the ceilings, and under stones. Growing from 30 cm to 80 cm in length, this snake resembles the deadily krait in superficial colouration.

Most of us are familiar with the sight of a long and aggressive serpent which speeds away in a flash when suddenly encountered in farmyards or houses. This is the rat snake (*Ptyas mucosus*) so named because of its preference for rats in search of which it enters cattle-sheds and agricultural areas. It is little known that it also preys upon frogs, lizards, birds,

and even snakes. It does not and cannot suck milk of cattle as is generally believed. Because it attains a length of 4 m, it is a much feared snake and is even considered a "male cobra". In fact the rat snake is a harmless species devoid of venomous fangs or true venom. However, it is not a gentle snake to retreat if trampled upon or molested. Then it hisses loudly and strikes forcefully. It is an excellent destroyer of rodents and is a friend of farmers. It is slaughtered in large numbers for its skin and meat. The royal snake or diadem snake of Northwest India (*Spalerosophis diadema*) is also a rodent destroyer. It is, however, regarded by local people as another variety of cobra and is done away with.

The most common among the tree-dwelling snakes is the green whip snake (*Ahaetulla nasuta*) whose parrot green colouration serves as a useful camouflage against leaves and conceals its presence in the branches of a tree effectively. It grows up to and beyond 2 m and is very much feared because of the erroneous belief that it aims to strike at its onlooker's eyes. Of course it is a fierce-tempered snake and bites readily. Its saliva secretes a slight quantity of venom too, but this is used only for quietening the struggle of the prey being swallowed, and for setting on the process of digestion. Though it is a tree dweller, it undertakes occasional forays on the ground in search of its food—frogs, lizards,

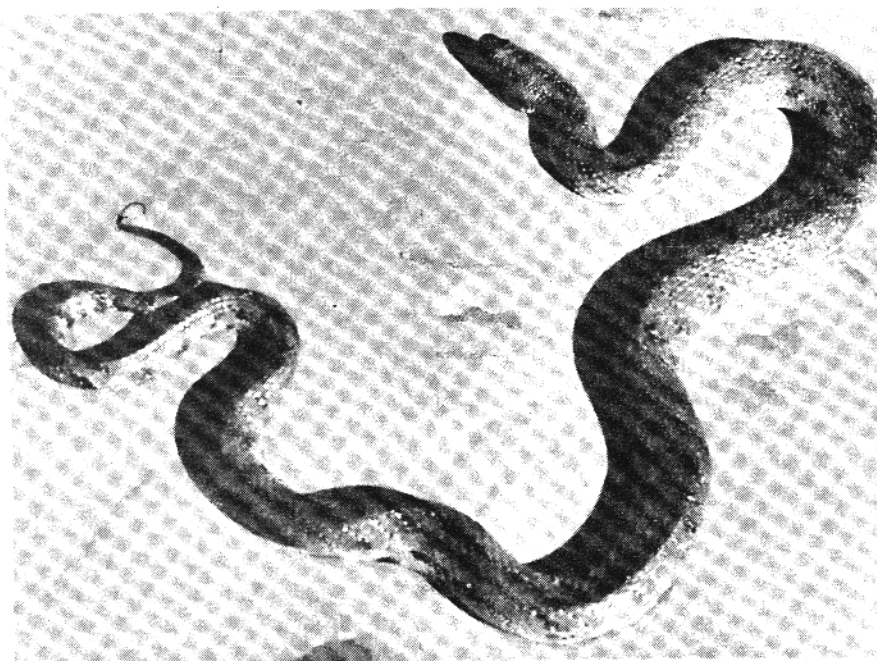


Fig. 7. Dog-faced water snake (*Cerberus rhynchops*)

and small mammals. It is found both in forests and plains.

The cat snake (*Boiga trigonata*), so named because of its bulging eyes and cat-like pupils, has a triangular head quite unusual for a colubid and almost looks like a viper. It can climb up the tree-tops where it rests in a coiled state under the shade of leaves. Its bite is harmless though it secretes a mild venom that is capable of paralysing the prey—lizards, birds and mice. It grows upto 1.5 m.

The golden tree snake (*Chrysopelea ornata*) of the forests of Madhya Pradesh, Bengal, Orissa, and South India is one of the prettiest snakes. But it is most spectacular of all the living snakes for its so called powers of "flight". Strictly speaking, no reptile can fly in the true sense, but this ornamental snake which rarely exceeds one meter in length can "take off" from one branch to another of a tree by jumping into space and at the same time spreading its ribs and flattening its body. The snake simply glides across gaps of as much as 2.7m between branches. It is active during the day and hunts

sleeping bats, small birds and lizards.

The kukri snak, (*Oligodon arnensis*) is another small, timid, non-poisonous snake growing up to 70 cm and is found throughout India. Some of the snake's teeth are flattened and resemble the blade of a gorkha's Kukri, hence its popular name. It is active during day and feeds upon lizards and frogs and their eggs in particular.

The egg-eating snake (*Elachistodon westermanni*) of North Bengal and Bihar is a rare but interesting snake because of its exclusively egg-eating habits. A one meter long individual can easily devour a medium sized hen's egg. Only the contents of the egg are allowed to pass into the stomach, the crushed shell is regurgitated.

Venomous snakes

The land dwelling poisonous snakes belong to two families—Elapidae and Viperidae while those found in the sea constitute a separate family, namely Hydrophiidae. All the venomous snakes possess a pair of long, grooved or hollowed fangs in

front of the upper jaw and each fang is connected by a duct to the venom secreting gland. Fangs of vipers are long, those of cobras and kraits small. With the exception of the pit or pitless vipers and coral snakes which are confined to the hilly tracts, the rest of the poisonous snakes are widely distributed throughout India. It is for this reason that the incidence of snake-bite deaths is closely associated with the distribution and abundance of the various poisonous snakes. Cobra venom is a nerve poison, whereas that of the viper is a blood poison. Cobras and their allies are all egg-layers, while the vipers give birth to their young alive.

Cobras

The common cobra (*Naja naja*) (1 m-2 m) is usually met with in the plains, jungles and even in regions heavily populated by man. Its natural haunts are old termite mounds, ruined buildings, rock-piles and rat holes. The most distinctive and impressive characteristic of a cobra is its hood which is formed when it raises the anterior of the body and spreads some of the ribs in the neck region when it is annoyed or frightened. We are so familiar with the pictures of cobras with their hoods raised that some of us do not know that the cobra looks like any other snake without its hood. It is generally docile by nature, bites only when accidentally stepped on or is under extreme provocation. Because of its poor eye sight in the day, it usually moves away quickly if disturbed. At night it sees well and is inclined to be more aggressive. The cobra is devoid of the intricate hearing devices and so is not charmed by music. It enters human dwellings in search of its delicacy—rats. Smaller ones are reported to be more aggressive with a higher inclination to strike. Young ones less than 30 cm long are capable of rearing up, spreading hood and ready to follow up the intimidatory

gesture with a venomous bite. Besides the common cobra with a "spectacle" mark, there are two other varieties of cobra in our country, the one with a white circle round a black spot on the hood (*Naja kaouthia*) is found in Bengal, Bihar, Orissa, Assam and Andaman Islands, and the black cobra (*Naja oxiana*) which has a plain hood is found in parts of Gujarat, Rajasthan, Punjab, and Kashmir. The king cobra or Hamadryad (*Ophiophagus hannah*) is the giant among the cobra family and is the largest of the venomous snakes of the world. A grown up adult can be 4.5 m long or more. Unlike the common cobra, it has a disproportionately narrow hood and most of its hunting takes place during the day. Despite its length, it is a good climber. It requires a reptilian diet including snakes of its own kind sometimes. It is the only cobra that takes care of its young. Despite all the hair-raising stories told about its unprovoked attacks on beasts and man alike, the king cobra is described as a docile snake making every attempt to avoid confrontation with man in an encounter. It is a rare snake now confined to a few pockets in Assam, Bengal (Sunderbans), Orissa, Western Ghats, and Andaman Islands.

Kraits

Seven species of kraits are known from India and all are strictly nocturnal. The kraits are conspicuously coloured snakes with either black and white or black and yellow bands on a black or bluish background. They are generally found in or near the termite mounds, rat holes and ruined buildings. Hiding by day in secluded spots, they become active at night. They are gentle in disposition. When provoked, a krait prefers to hide its head beneath the coils instead of snapping up. Kraits feed mostly on other snakes and reptiles. The common krait (*Bungarus caeruleus*)

is under 2 m in length and has an extremely strong venom which is four times as potent as that of the cobra. The banded krait of North India (*Bungarus fasciatus*) reaches a length of 2 m and is a slow moving, timid snake, rarely causing human fatalities.

Coral snakes

Coral snakes are small, slender elapids restricted to the forested areas. They are brightly coloured. They lead a concealed life under the debris and decaying logs of forests. All coral snakes are front-fanged and potentially venomous but their fangs are small and their mouths so tiny that they are incapable of causing fatalities among humans. However, the striped coral snake (*Callophis nigriscers*) of Southwest India, attain a length of one meter, may be dangerous to man.

Vipers

Vipers are easily recognised by their triangular heads, narrow necks and smaller scales on the head. Further, they have a short and stout body and a short tail. Majority of them produce living young. There are three kinds of vipers in India. Of them, the Russell's viper (*Vipera russelli*) and the saw-scaled viper (*Echis carinatus*) are found throughout India while the third, the Levantine viper (*Vipera lebetina*) is confined to Kashmir. The Russell's viper (1.8 m) is a heavy bodied snake and is characterised by three longitudinal rows of red-brown spots on its back. It prefers rock crevices and thick vegetation as its abode. It is a slow moving snake which tends to crawl instead of moving fast. It gives a loud warning hiss before striking and is said to be responsible for more deaths than any other snake. This is probably due to the sluggish nature of this stout snake which instead of moving away when disturbed tends to remain under camouflage. The saw-

scaled viper is smaller in size (80 cm) and needs no introduction to the people of Maharashtra, Punjab, and Rajasthan where it is plentiful. In addition to the triangular head typical of a viper, it is easily recognised by a trident-like marking on its head and the wavy markings on its back. It loves to spend much of its time enjoying the scorching heat of the midday sun in the arid tracts. It is aggressive and quick to strike at the slightest provocation. It is said that this little viper flings a 30 cm or so in the air to deliver a bite. When molested, it throws itself into a double coil somewhat looking like figure '8' and rubs the sides of its body producing a violent rustling sound. Despite its small size, its habit of lying in the sand with only the head exposed poses a real threat to the people in the desert and semi-arid tracts.

Pit vipers

Pit vipers have a pit between nostrils and eyes, which is employed as a detector of warm blooded preys. The tail of pit vipers is short and in some it is prehensile. Some sixteen kinds of pit vipers are found in India. Majority of these are excellent climbers and their widespread occurrence in the mountainous regions even at elevations of 3,000 m where they rest camouflaging in the bushes and plantations poses a serious hazard to the lives of the plantation labourers and tea leaf pickers at work in the Eastern Himalayas and Western Ghats. The well-known Indian pit vipers are the bamboo pit viper (*Trimeresurus gramineus*) which grows to 90 cm and is found throughout India, and the rock pit viper (*Trimeresurus malabaricus*) of South India which reaches a length of 1.3 m.

Sea snakes

Snakes in the sea—numerous in number than all the snakes of the world and most venomous of all the

(Continued on page 151)

COLOURFUL AUSTRALIAN BIRDS



Golden Whistler
(*Pachycephala pectoralis*)

Pink Robin
(*Petroica rodinogaster*)



Red-Eared Fire Tail Finch
(*Zonaeginthus ocellatus*)



White-Backed Magpie
(*Gymnorhina hypoleuca*)



White-Faced Chat
(*Ephianura albilrons*)



Zebra Finch
(*Taeniopygia castanotis*)



Rainbow-Bird
(*Merops ornatus*)



Black-Tailed Finch
(*Poephila atropygialis*)



Gouldian Finch
(*Poephila gouldiae*)





Mudlark (Pee Wee)
(*Grallina cyanoleuca*)



Azure Kingfisher
(*Alcyon azurea*)



Spotted Pardalote
(*Pardalotus punctatus*)



Blue Wren
(*Malurus cyaneus*)



Red-Backed Wren
(*Malurus melanocephalus*)



Black-Faced Flycatcher
(*Monarcha melanopsis*)



Welcome Swallow
(*Hirundo neoxena*)



Silver Gull
(*Larus novae-hollandiae*)



Yellow-Breasted Sunbird
(*Cyrstostomus frenatus*)



Scarlet Honeyeater
(*Myzomela sanguinolenta*)